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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/608,169	06/30/2000	Takayuki Urata	43890-430	9745

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600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER

PATTERSON, MARC A

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/608,169

Applicant(s)

URATA ET AL.

Examiner

Marc A Patterson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4, 13-16 and 65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 13-16 and 65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### WITHDRAWN REJECTIONS

1. The 35 U.S.C. 103(a) rejection of Claim 1 as being unpatentable over Awata (U.S. Patent No. 5,866,228) in view of The Encyclopedia of Polymer Science and Engineering (Volume 12, page 225, 1985), of record on page 2 of the previous Action, is withdrawn.

### NEW REJECTIONS

#### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Awata (U.S. Patent No. 5,866,228).

With regard to Claim 1, Awata discloses a vacuum heat insulator (therefore an insulator for an insulating device; column 2, line 2) comprising a laminate bag (column 4, lines 15 – 17) and an insulating core placed in the laminate bag (a calcium silicate product that is incorporated into the container; column 4, lines 44 – 49) wherein the inside of the laminate bag is evacuated to vacuum (the inside of the container is evacuated to a highly reduced pressure state; column 4, lines 44 – 58), the laminate bag is made of a laminate film comprising plastic films disposed on both sides of a metal oxide layer (column 4, lines 35 – 39); one of the films has excellent scratch resistance, and is therefore a protective layer, and the other has excellent heat sealing property, and is therefore a seal layer (column 4, lines 39 – 43); the metal oxide layer comprises a metal

oxide deposited onto a plastic film (polyvinyl alcohol – based film; column 3, lines 33 – 35); the laminate film therefore comprises a protective layer, seal layer, a deposition layer comprising the metal oxide layer and a plastic layer comprising the plastic film on which the deposition layer is deposited; the laminate bag comprises a seal portion (column 5, lines 4 – 7) that is formed by a junction of the seal layer and the laminate film because it is formed by the sealing of the seal layer to another seal layer as shown in Figure 1 (the seal layer is marked '2' in Figure 1; column 5, lines 4 – 7).

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 – 3, 13 – 15 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Awata (U.S. Patent No. 5,866,228) in view of The Encyclopedia of Polymer Science and Engineering (Volume 12, page 225, 1985).

Awata teaches an insulator comprising a support layer and protective layer comprising plastic as discussed above. The protective layer comprises a polyester film (column 4, lines 39 – 41) which comprises polyethylene terephthalate (column 6, lines 40 – 45) and the support layer comprises a polyvinyl alcohol – based film (column 4, lines 26 – 28) or polyethylene terephthalate film (polyester is interchangeably used with other films having flexibility as the plastic films, and is therefore used interchangeably with polyvinyl alcohol as the support layer,

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which is one of the plastic films; column 4, lines 24 – 29). With regard to Claims 2 – 3, 13 – 15 and 65, Awata fails to disclose a support layer and protective layer having a glass transition temperature of 87 degrees Celsius or greater.

However, The Encyclopedia of Polymer Science and Engineering (Volume 12, page 225, 1985) teaches that polyethylene terephthalate polymers have glass transition temperatures ranging from 67 – 140 degrees Celsius (The Encyclopedia of Polymer Science and Engineering, Volume 12, page 225; final paragraph, ‘Thermal Transitions’). Therefore, the glass transition temperature would be readily determined from the range of 67 – 140 degrees Celsius through routine optimization by one having ordinary skill in the art depending on the desired end use of the product. It therefore would be obvious for one of ordinary skill in the art to vary the glass transition temperature within the range of 67 – 140 degrees Celsius, since the glass transition temperature would be readily determined through routine optimization by one having ordinary skill in the art depending on the desired end use of the product, in the absence of unexpected results.

6. Claims 4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Awata (U.S. Patent No. 5,866,228) in view of Cheng et al (U.S. Patent No. 4,745,015).

Awata discloses an insulator comprising a plastic film comprising polyethylene terephthalate as discussed above. With regard to Claims 4 and 16, Awata fails to disclose a film comprising polycarbonate.

Cheng et al teach that polycarbonate is equivalent to polyethylene terephthalate (column 3, lines 7 – 38) for the purpose of making an insulator which is readily molded or shaped

(column 3, lines 7 – 38). The desirability of providing for a film comprising polycarbonate in Awata, which is an insulator, would therefore be obvious to one of ordinary skill in the art.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for polycarbonate in Awata in order to make an insulator which is readily molded or shaped as taught by Cheng et al.

#### ANSWERS TO APPLICANT'S ARGUMENTS

7. Applicant's arguments regarding the 35 U.S.C. 103(a) rejection of Claims 1 – 3 and 13 – 15 as being unpatentable over Awata (U.S. Patent No. 5,866,228) in view of The Encyclopedia of Polymer Science and Engineering (Volume 12, page 225, 1985) and 35 U.S.C. 103(a) rejection of Claims 4 and 16 as being unpatentable over Awata (U.S. Patent No. 5,866,228) in view of Cheng et al (U.S. Patent No. 4,745,015), of record in the previous Action, have been carefully considered but have not been found to be persuasive for the reasons set forth below.

Applicant argues, on page 12 of the remarks dated November 22, 2004, that Applicants have demonstrated critical and superior results in maintaining excellent insulating performance when the glass transition point of the first support layer or the third protective layer is 87 degrees Celsius or higher.

However, Applicant presents no data in the specification for the insulating performance when the glass transition point of the first support layer or the third protective layer is lower than 87 degrees Celsius; therefore, although excellent insulating performance appears to be maintained at the claimed glass transition point, no comparison can be made to glass transition points outside that range to determine if unexpected results are observed in the claimed range.

Applicant also argues on page 12 that although The Encyclopedia of Polymer Science and Engineering (Volume 12, page 225, 1985) teaches that polyethylene terephthalate has a glass transition temperature in the range of 67 – 140 degrees Celsius, it does not disclose that the polyester film of Awata has a glass transition temperature in the range of 67 – 140 degrees Celsius.

However, although the Encyclopedia does not make specific reference to the polyester film of Awata, the polyester film of Awata is clearly polyethylene terephthalate, as discussed above, and therefore has a glass transition temperature in the range of 67 – 140 degrees Celsius.

Applicant also argues, on page 14, that nowhere in the disclosure of Awata does it suggest any use of high temperature nor is there any glass transition point of plastic film being utilized.

However, as stated on page 2 of the previous Action, The Encyclopedia of Polymer Science and Engineering (Volume 12, page 225, 1985) teaches that polyethylene terephthalate polymers have glass transition temperatures ranging from 67 – 140 degrees Celsius (The Encyclopedia of Polymer Science and Engineering, Volume 12, page 225; final paragraph, ‘Thermal Transitions’). Awata et al therefore disclose a protective layer having a glass transition temperature ranging from 67 – 140 degrees Celsius.

Applicant also argues, on page 14 that Awata does not provide any reasons or motivation for a protective layer having a glass transition point of 87 degrees Celsius. However, Awata et al teach that the insulation is used for refrigeration (column 5, lines 59 – 62) and is therefore used for the purpose of maintaining a cold storage temperature inside the refrigerator, despite higher temperatures outside the refrigerator. It would therefore be obvious for one of ordinary skill in

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the art to provide for the highest possible glass transition temperature of the polyester layer, in order to provide a refrigerator that maintains cold storage temperature inside the refrigerator at a higher temperature than would be available if the glass transition temperature were lower.

Applicant also argues on page 14 that there is no motivation to combine Awata et al and The Encyclopedia of Polymer Science and Engineering other than the claimed subject matter.

However, as stated above, motivation is provided in Awata, clearly independent from Applicant's specification.

Applicant also argues, on page 15, that the Encyclopedia of Polymer Science and Engineering discloses the probable operating range of the glass transition temperature, but does not suggest the problem addressed by the claimed invention involving cracking of the support layer.

However, because an operating range is stated for the glass transition temperature, the Encyclopedia teaches the range, and it is therefore not necessary for the Encyclopedia to cite the problem that is addressed by Applicant.

Applicant also argues on page 15 that even if it is proper to combine Awata and The Encyclopedia of Polymer Science and Engineering, the resulting film does not necessarily have a glass transition temperature of 87 degrees Celsius or higher.

However, as stated above, it would therefore be obvious for one of ordinary skill in the art to provide for the highest possible glass transition temperature of the polyester layer, in order to provide a refrigerator that maintains cold storage temperature inside the refrigerator at a higher temperature than would be available if the glass transition temperature were lower.



Applicant also argues, on page 16, that unexpected results are disclosed in the specification because data is disclosed indicating that for a support layer and protective layer having a glass transition temperature of greater than 87 degrees Celsius excellent gas barrier performance and degree of vacuum are maintained after durability test at 100 degrees Celsius.

However, the specification does not specify that the results are unexpected, or discuss why the results are unexpected. Furthermore, as stated above, no data outside of the claimed range are disclosed, therefore no comparison can be made between the insulation that is obtained inside and outside of the claimed range to determine if unexpected results are obtained.

Applicant also argues, on page 18, that it does not appear as though the support layer having a glass transition temperature of 87 degrees Celsius or higher is disclosed.

However, as stated above, the protective layer disclosed by Awata comprises a polyester film (column 4, lines 39 – 41) which comprises polyethylene terephthalate (column 6, lines 40 – 45) and the support layer comprises a polyvinyl alcohol – based film (column 4, lines 26 – 28) or polyethylene terephthalate film (polyester is interchangeably used with other films having flexibility as the plastic films, and is therefore used interchangeably with polyvinyl alcohol as the support layer, which is one of the plastic films; column 4, lines 24 – 29); a support layer having the same composition as the protective layer is therefore disclosed.

Applicant also argues on page 18 that the pending dependent claims are allowable for the same reasons which were given for the independent claims. In response, the answers above with regard to the independent claims are repeated.

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Applicant also argues, on page 19, that Cheng et al lists both polycarbonate and polyethylene terephthalate as being moldable, but does provide motivation for replacing the polyethylene terephthalate of Awata with polycarbonate.

However, as stated on page 3 of the previous Action, Cheng et al teach that polycarbonate is equivalent to polyethylene terephthalate (column 3, lines 7 – 38) for the purpose of making an insulator which is readily molded or shaped (column 3, lines 7 – 38). It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for polycarbonate in Awata in order to make an insulator which is readily molded or shaped as taught by Cheng et al, and motivation is thus provided by the teaching that the polymers are used interchangeably.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc A Patterson whose telephone number is 571-272-1497. The examiner can normally be reached on Monday - Friday, 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Marc Patterson 12/8/04*  
Marc A Patterson  
Examiner  
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